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Establishing the validity of "Sports Talent®": a methodology for motor talent detection in sports
Establecimiento de la validez del "Sports Talent®": una metodología para la detección de talentos motores en el deporte

*Michael Douglas Celestino Bispo, *Marcos Antonio Almeida-Santos, **Antonio Carlos Gomes, *Márcio Duarte Carvalho Alves, *, ***Estélio Henrique Martin Dantas
*Tiradentes University (Brazil), **Brazilian Coaches Academy (Brazil), ***Federal University of the State of Rio de Janeiro (Brazil)

Abstract. The objective of the study was to establish the scientific validity of a comprehensive methodology for motor talent detection in sports, named "Sports Talent®". The methodology was created and validated through the Delphi method, with the participation of expert evaluators with expertise in High Performance Sport (HPS). The proposed structure of the method was submitted to an Expert Evaluator Panel (EEP), initially consisting of 90 participants, of whom 23 remained until the end of the study. The characteristics of the remaining participants were as follows: age $\bar{X}$= 44.3 ± 10.5 years; period dedicated to work in HPS: $\bar{X}$= 12.3 ± 10.4 years. The Delphi method involved formulating questions to obtain responses on a Likert scale, conducted over three rounds. Significant improvements in reliability and agreement among the EEP were noted in each round of the Delphi method. In Round 1, out of 95 sent questionnaires, 43 responses were received, yielding a Cronbach's alpha value of α = 0.72 and a 93.0% agreement rate for the tests. By Round 3, of the 25 questionnaires sent, 23 responses were received, achieving a perfect Cronbach's alpha value of α = 1.0 and a 100.0% agreement rate. The high relevance and consistency of tests such as the Sociocultural Contextual Inventory, Biological Maturation by Tanner, Informatized Dermatoglyphics, Epigenetic Anthropometry, and the Motivation Form were evident across all rounds. The order of procedure execution also showed increasing consensus, highlighting the progressive alignment of expert opinions throughout the study.
Keywords: Dermatoglyphics; Sexual Characteristics; Athletic Performance; Epigenome; Delphi Technique.

Resumen. El objetivo del estudio fue establecer la validez científica de una metodología integral para la detección del talento motor en deportes, denominada "*Sports Talent®*". La metodología fue creada y validada a través del método Delphi, con la participación de evaluadores expertos en Deporte de Alto Rendimiento (DAR). La estructura propuesta del método fue sometida a un Panel de Evaluadores Expertos (PEE), inicialmente compuesto por 90 participantes, de los cuales 23 permanecieron hasta el final del estudio. Las características de los participantes que quedaron fueron las siguientes: edad $\bar{X}$= 44.3 ± 10.5 años; período dedicado a trabajar en el DAR: $\bar{X}$= 12.3 ± 10.4 años. El método Delphi consistió en formular preguntas para obtener respuestas en una escala Likert, llevándose a cabo en tres rondas. Se observaron mejoras significativas en la fiabilidad y el acuerdo entre el PEE en cada ronda del método Delphi. En la Ronda 1, de los 95 cuestionarios enviados, se recibieron 43 respuestas, obteniendo un valor de alfa de Cronbach de α = 0.72 y una tasa de acuerdo del 93.0% para las pruebas. Para la Ronda 3, de los 25 cuestionarios enviados, se recibieron 23 respuestas, logrando un valor perfecto de alfa de Cronbach de α = 1.0 y una tasa de acuerdo del 100.0%. La alta relevancia y consistencia de pruebas como el Inventario Contextual Sociocultural, la Maduración Biológica por Tanner, la Dermatoglífica Informatizadas, la Antropometría Epigenética y el Formulario de Motivación fueron evidentes en todas las rondas. El orden de ejecución del procedimiento también mostró un consenso creciente, destacando la alineación progresiva de las opiniones de los expertos a lo largo del estudio.
Palabras clave: Dermatoglifia; Características Sexuales; Rendimiento Atlético; Epigenoma; Técnica Delphi.

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Michael Douglas Celestino Bispo
michaeldouglasc@hotmail.com

Introduction

The global significance of sports practice can be characterized by its three interconnected facets: social, media, and economic (Bispo et al., 2022). Although distinct, these facets are interlinked and mutually influence each other.

Building upon these aspects and with the aim of implementing a public policy focused on Talent Detection in Sports, the Brazilian Olympic Committee (COB) established the Talent Identification and Development System in Sports (SIDTE, in Portuguese) (Achour et al., 2021). This project categorized talent prospecting into three phases: 1) Motor Talent Detection, 2) Sport-Specific Talent Detection, and 3) Talent Detection by Event, Role, or Position. To achieve the first phase, the identification of Motor Talent, the modus operandi for this stage is derived from a set of dimensions that encompass the Conditioning Factors of High-Level Performance (FCPAN) (Dantas & Araújo, 2022). These dimensions advocate the evaluation of the following domains: sociocultural, psychological, biological, and motor. It is important to emphasize that, although the tests established by SIDTE (2021) address the mentioned dimensions, during their practical application and in the literature review phase, there was an omission of methods that assess sexual maturation or biological age (Cumpian-Silva et al, 2021), as well as potential biological individuality (epigenetics) (Gastélum-Cuadras, 2022). Both methods play an important role in identifying data that may distort the detection of talent potential. Biological maturation is a critical factor that affects the development and potential of young athletes, influencing various talent dimensions. Since the "Sports Talent®" methodology evaluates sociocultural, psychological, biological, and motor aspects, it becomes essential to consider maturation. Variations in biological maturation among peers can significantly impact motor skills and physical abilities, making it crucial for accurate talent identification and development. (Verbeek et

al., 2023) Sexual Maturation is a process resulting from physiological changes that are most pronounced during adolescence. The period of biological changes due to maturation depends on two main factors: chronological age and maturational stage (Almeida-Neto et al., 2022). These changes directly impact sports performance. If a normally mature individual competes against a pre-mature individual, the latter will have a clear advantage. Given this scenario, there is a need for a maturational classification to identify talents without distorting the results (Albaladejo-Saura et al., 2021; Bezerra-Santos et al., 2023).

The same applies to epigenetics, which involves the modulation of gene expression resulting in a specific phenotype. Considering that the phenotype incorporates everything added to an individual throughout their life (Uceli & Costa, 2019; Guzman Muñoz et al., 2023). These aspects inherent to practice reflect the current biological capacity of an individual to develop certain physical qualities, such as agility, strength, endurance, motor coordination, speed, and power, with these qualities potentially being identified through dermatoglyphics (Bispo, 2020 & Suhadi et al., 2023).

Another important aspect in determining epigenetic potential focuses on the analysis of fingerprints, a valuable tool for predicting athletic potential. Fingerprints are considered epigenetic marks that form during fetal development and remain unchanged throughout life (Patnaik et al., 2024). Fingerprint analysis is used to identify epigenetic predispositions for certain physical capacities and motor skills. Certain patterns in fingerprints (whorls, number and arrangement of lines) are associated with a greater potential for activities requiring agility, coordination, strength, endurance, speed, etc. (Nodari-Junior et al., 2022).

The inclusion of dermatoglyphics and biological maturation in the SIDTE of the COB has significantly enhanced the accuracy of the Sports Talent® methodology for detecting motor talent in sports. This advanced approach aligns with the findings of Tai et al. (2022), who demonstrated that integrating these factors provides a more comprehensive assessment of an athlete's potential. By incorporating both genetic and developmental indicators, the revised methodology ensures a more precise identification process, ultimately supporting the development of future elite athletes (Ramos Parraci et al, 2022).

Considering these factors, the lack of comprehensive studies in the field of Talent Detection that consider all the dimensions mentioned above, as well as the undeniable social, media, economic, and scientific relevance of sports, raises a fundamental question for the completion of this study: Is it feasible to establish the validity of an effective methodology for Motor Talent Detection in Sports?

Based on this premise, the present study aims to establish the scientific validity of a comprehensive methodology for motor talent detection, named "Sports Talent®"

Materials and Methods

This is a descriptive, cross-sectional, and exploratory study. An exploratory study is the most appropriate when knowledge about a specific problem is limited, and there is not a comprehensive understanding of the subject under investigation (Gomes & Gomes, 2019).

It is also defined as methodological research characterized by examining scientific methods that involve the production-construction, validation, and evaluation aimed at creating instruments, in this case, using the Delphi technique as a methodological parameter (Teixeira, 2019).

Considering these aspects, methodologically, the study was divided into two stages that guided the procedures for each, as recommended by Junior et al. (2023), established as follows:"

- **1st Stage:** Advocating the methodology and instruments that enable the conduct of Motor Talent Detection.
- **2nd Stage:** Assessment of the Validity of the Motor Talent Detection Methodology - "Sports Talent®"

Ethical Considerations

In compliance with Law No. 14,874 of May 28, 2024 (BRASIL, 2024) and the Declaration of Helsinki (WMA, 2013), participants signed the Informed Consent Form (ICF), which included the research objectives, evaluation methods, potential consequences, and emergency actions for participating in the study. Minors had their ICF signed by their parents or guardians and provided their agreement via the Assent Form (AF). Fundamental ethical principles such as informed consent, confidentiality, and respect for privacy were fully considered throughout the selection and participation process of the athletes, in accordance with the General Data Protection Law (BRASIL, 2018). The project received prior approval from the Research Ethics Committee of Tiradentes University - CEP/UNIT, under CAAE No: 67747517.0.0000.5371, as per opinion No. 5.697.518, dated October 11, 2022.

Procedures

To proceed with the research, it was necessary to establish a methodology capable of conducting Motor Talent Detection. To achieve this, the Brazilian Olympic Committee, in collaboration with the Brazilian Academy of Coaches (*Academia Brasileira de Treinadores – ABT*), created the Talent Identification and Development System for Sports (*Sistema de Identificação e Desenvolvimento de Talentos para o Esporte – SIDTE*) (Achour et al., 2021).

This protocol advocates the following tests for the identification of Motor Talent (1st Phase of Sports Talent® Identification), as seen in Table 1:

Table 1.
Tests by Phase and Dimension

Dimensions	Motor Talent 1st Phase	Sports Talent by Sport 2nd Phase	Sports Talent by Event/Role/Position 3rd Phase
Biological	Body mass, height, wingspan, and trunk-head height	Body mass, height, wingspan, trunk-head height, biacromial diameter, bitrochanteric diameter, and others. Specific motor tests for the sport discipline.	Body mass, height, wingspan, trunk-head height, biacromial diameter, bitrochanteric diameter, and others. Specific motor tests for events, function, position, and categories.
Psychological	Brief Behavioral Observation Schedule	Personality (EPQJ or BFP) Mental Toughness Scale (SMTQ)".	BPA Battery (focused, alternating, and sustained attention). Coping ACSO-28BR. Personality (BFP)
Sociocultural	Sociocultural Contextual Inventory	Sociocultural Contextual Inventory. Social Support Scale	------

Source: Adapted from SIDTE (2017).

It is important to note that the present study is limited exclusively to the Motor Talent Detection phase, as the other stages depend on this initial validation. Therefore, the SIDTE tests were used as the working basis.

Subsequently, a discussion supported by the Brainstorming methodology (Daugherty et al., 2021) was conducted with the Working Group for Vocational Guidance and Talent Detection in Sports, part of the Human Motor Biosciences Laboratory (LABIMH/UNIT in Portuguese). The conclusion was reached that both Epigenetics (Dermatoglyphics) and maturation (Tanner Staging) should be included in this stage to make the extrapolation of results obtained with children to the adult phase more probabilistically accurate.

For the second stage, the Delphi method was used for Face Validity validation of the instrument. The Delphi method involved formulating questions to obtain responses on a Likert scale, conducted over three rounds.

The method follows a flowchart based on the following steps: 1) Choose a facilitator from outside the group of expert evaluators involved in the study; 2) Define the problem to be investigated; 3) Create and send the research instrument, either physically or virtually, to be validated by the EEP in the relevant field; 4) Move on to successive rounds of material submissions until a consensus is reached, ultimately achieving the validation of the material, in this case, an instrument that allows for the detection of motor talent (Hoornaert, Pochet & Lorent, 2022; Zaçe et al., 2023).

Instruments

Following this protocol, it was possible to adjust the Motor Talent Detection methodology based on the prevailing opinions among the EEP members, ensuring the instrument's validity.

The Expert Evaluators were contacted via email, along with an attachment containing an introduction letter explaining the research and a link to the online Delphi survey (https://abrir.link/AZvYh only in Portuguese), as seen in Figure 1:

Figure 1. QR-Code with a link for sending the computerized Delphi. Source: Author's own (2024).

At the conclusion of the validation process, the structure and composition of Sports Talent® can be accessed through the following links: https://openrit.grupotiradentes.com/xmlui/handle/set/7422 (in English) and https://openrit.grupotiradentes.com/xmlui/handle/set/7460 (in Spanish). These links are also available via the QR codes in Figures 2 and 3, respectively, providing direct access to the English and Spanish versions.

Figures 2. QR-Code with a link for English and Spanish versions of Sports Talent®. Source: Author's own (2024).

Figure 3. QR-Code with a link for English and Spanish versions of Sports Talent®. Source: Author's own (2024).

Participants

The Expert Evaluator Panel (EEP) was comprised of professors, researchers, coaches, and physiologists, all of whom held a completed higher education degree and had a national and international sports background.

All Expert Evaluators meeting the described characteristics were included in the research, while those who were not willing to participate in all rounds of the method voluntarily were excluded.

Initially, the panel consisted of 95 expert evaluators, sourced from the Human Motor Biosciences Laboratory's database (Bispo, 2020) and contacted virtually. However, out of the initial 95 invitees, only 45 individuals provided feedback for the first round of evaluation.

It is important to note that although the number of evaluators at the end of study, was 23 (initially 95), and this might give the impression of a small sample size to researchers unfamiliar with the method, studies employing the Delphi method often have sample groups consisting of 5 to 10 expert evaluators, as they are individuals with expertise in the subject. A sample size of the quantity presented in this study is considered robust, as observed in studies already published in other high-impact journals (Almohanna et al., 2022 & Jairoun et al., 2022).

Statistical analysis

For data management, Microsoft Excel® version 2016 was used, while the software Stata (College Station, Texas, USA) version 15.1 was used for estimations. The statistical procedures employed for data analysis were aimed at characterizing the sample and testing the hypotheses formulated, grouped as follows:

Continuous variables were presented as means and standard deviation. Categorical variables were presented as absolute numbers and percentages. Furthermore, the Cronbach's Alpha Coefficient (α) was used for reliability measurement (i.e., assessing the internal consistency of expert evaluator responses) for a set of two or more construct indicators (Bland & Altman, 1997).

Results

Based on the results of the Brainstorming, the protocols presented in Figure 3 were proposed.

Table 2.
Variables and Instruments Used for Motor Talent Detection

Variable (Indicator)	Assessment Instrument	Scientific Validation
Sociocultural	Sociocultural Contextual Inventory	Mendonça et al. (2021);
Psychological	Behavioral Observational Script	Dos Santos; Silva (2022);
Motor Coordination	Korperkoordination Test Fur Kinder – KTK.	Kiphard; Schilling (1974); Gorla (2014)
Biological Sexual Maturation	Tanner Staging	Tanner (1981; 1975)
Potential of Epigenetic Physical Qualities	Digitalized Computerized Dermatoglyphics	Dantas et al., (2020); Nodari-Junior; Herbele (2008); Cummins; Midlo (1961)
Epigenetic Anthropometric Relationships	Anthropometric Measurements	Dantas et al., (2020); Lohman; Roche; Mortorell (1988); Lora-Pozo (2019).

Source: Author's own (2023).

Subsequently, we moved on to determine the face validity of the battery composition presented in Table 2 to detect motor talents. This determination was carried out, as explained in the methodology, through the Delphi Method, with consultations to the EEP, which had the following sample profile: age $\bar{X} = 44.3 \pm 10.5$ years; period dedicated to work in High Performance Sport (HPS): $\bar{X} = 12.3 \pm 10.4$ years, along with the other characteristics presented in Table 1:

Table 3.
Characterization of the Panel of Expert Evaluators

	Frequency	(%)
Level of Education.		
Ph.D.	11	25,6
Master's degree	14	32,6
Specialization	15	34,9
Higher Education	3	7,0
Area of specialization		
Physical education	40	93,0
Others	3	7,0
Works or worked with HPS		
Yes	32	74,4
No	11	25,6
Years of work in HPS		
Between 0 and 5 years.	17	39,5
Between 6 and 10 years	7	16,3
Between 11 and 15 years	3	7,0
Between 16 and 20 years	7	16,3
Between 21 and 25 years	3	7,0
Between 26 and 30 years	4	9,3
More than 31 years.	2	4,7

Source: Author's own (2023).

It can be observed that this is a group with expertise in the sports field, both in terms of their scope of work and

the time and level of knowledge application.

The results of the consultation with this group, regarding the composition and appropriateness of the chosen procedures and tests, can be seen in Table 2:

Table 4.
Results obtained in each round of the Delphi method, Cronbach's alpha values, and the percentage of agreement for the tests in general

Round	Sent	Received	Value of α for the Tests	Percentage of Agreement
1	95	43	0,72	93,0
2	43	25	0,85	96,0
3	25	23	1,0	100,0

Source: Author's own (2023).

It can be noted that the composition and appropriateness of the chosen procedures and tests had their validity confirmed by 100% of the EEP at the end of the third round.

When analyzed separately, the motivation and sociocultural support tests showed a higher index, while Biological Maturation by Tanner was the point of the most divergence among evaluators. These points of convergence and divergence are described in Table 3.

Table 5.
Results of the agreement assessment for each test and the order of application

	Round 1 n= 43 (%)	Round 2 n= 25(%)	Round 3 n= 23 (%)
Relevance of each test in the Battery			
Sociocultural Contextual Inventory	42 (97,7)	25 (100,0)	
Biological Maturation by Tanner	40 (93,0)	24 (96,0)	23 (100,0)
Informatized Dermatoglyphics	42 (97,7)	25 (100,0)	
Epigenetic Anthropometry	42 (97,7)	25 (100,0)	
Koperkoordination T. F. Kinder	42 (97,7)	25 (100,0)	
Motivation Form	43 (100,0)	25 (100,0)	
Order of Procedure Execution			
Tests	25 (58,1)	22 (88,0)	23 (100,0)
Anthropometry	29 (67,4)	22 (88,0)	22 (95,7)

Source: Author's own (2023).

Based on the findings presented in Table 3, a qualitative analysis was conducted regarding the consensus among the Expert Evaluators, which can be seen in Table 4:

Table 6.
Qualitative Analysis of Consensus Among Expert Evaluators

	Delphi Round 1	Delphi Round 2	Delphi Round 3
Sociocultural Contextual Inventory	Consensus[1] - inclusion	Consensus	Consensus
Biological Maturation by Tanner	Without consensus[2] - discussion	Consensus	Consensus
Informatized Dermatoglyphics	Consensus[3] - discussion	Consensus	Consensus
Epigenetic Anthropometry	Consensus[4] – discussion	Consensus	Consensus
Korperkoordination T. F. Kinder	Consensus[5] – discussion	Consensus	Consensus
Motivation Form	Consensus	Consensus	Consensus

1 – It was suggested by one evaluator to replace the term 'snack' with 'school snack'. Also, more clarity was requested in question 23, and both changes were made.
2 – Four evaluators expressed concerns about the test's sensitivity. To address this, greater care was taken in the test administration process. Participants were instructed not to return to the classroom after completing the test, and logistics were adjusted to ensure privacy and obtain prior parental approval. One evaluator suggested using more playful images, but this suggestion was not adopted to reduce potential errors. However, a consensus was reached in the second round.
3 – One evaluator suggested not using computerized dermatoglyphics, claiming that there was not enough robust information about the method. However, the literature review in this thesis provided evidence to the contrary, and this was explained to the evaluator.
4 – One evaluator suggested including the waist-to-hip ratio, but it was not accepted because it is not an epigenetic relationship.
5 – It was suggested to include a Motor Coordination Scale and a test of agility with speed. However, these tests will be part of a subsequent detection phase, not the motor talent phase.

The results presented in Table 4 aimed to verify whether the lower consensus observed (95.7%), related to the order of anthropometric measurements, could compromise the validity of the proposed instrument.

With the successful establishment of the validity of the methodology for sports vocational guidance, it is now possible to introduce "SPORTS TALENT" to the academic community: an approach carefully developed and validated for the detection of motor talents in the sports context. This instrument not only addresses the central question of this study but also provides a tool that can be employed by researchers, sports coaches, and professionals in the field, thereby enriching the scientific and practical landscape of sports talent identification and development.

Discussion

When it comes to Talent Detection in sports, different approaches can be adopted. In a macro view, as previously discussed in this study, the two main approaches are Aggregation and Prospection (Dantas & Araújo, 2022). The entire research presented throughout this thesis aligns with the Prospection field, but it is important to understand that Talent Detection is not yet an exact science.

An example of this is the study by Pickering et al. (2019), which recommends the use of genetic tests for talent detection. In this case, we understand that epigenetics might be more suitable for considering the entire environmental aspect that constitutes the phenotype. Varrillas-Delgado et al. (2022) supports this idea, certifying that the use of DNA tests is an important step in talent identification, but with the caveat that the environmental factor should not be ignored throughout the entire process, as we identified in the advocacy of the tests that comprised the created and validated methodology.

In this way, it is not only the need for more research in this area that is evident but also the absence of an absolute truth on the subject. Proof of this is that Johnston et al.

(2018), in a systematic review, concluded that there is limited knowledge about the subject.

In another systematic review, conducted by Sarmento et al. (2018), which had a more robust sample with 70 manuscripts, they concluded that technical and tactical skills should be considered along with anthropometric and physiological characteristics. They also highlighted the absence of research that considers psychological and environmental factors, precisely the factors present in the current study, to encompass as many variables inherent to Motor Talent Detection in sports as possible.

This mention of Sarmento et al. (2018) highlights the importance of tests that comprehensively encompass the Determinants of High-Level Performance (Dantas & Araújo, 2022). These factors involve Environment, Heredity, Training, Biotype, Motivation, Personality, and Skills. Therefore, expanding the number of tests in the detection process seems to be appropriate, and for this purpose, we sought to validate a methodology that aligns with this concept.

For this validation to occur, the Delphi method was used. According to Soriano et al. (2022), the ideal sample size for a study based on the Delphi method is not well defined in the literature, but there is a general acceptance that between 12 and 18 participants with expertise in the subject to be observed should be included. In this article, the Expert Evaluator Group consisted of 45 participants, indicating both a robust sample and a strong level of expertise. All evaluators had at least completed a higher education degree in a health-related field, and 74.4% had worked in positions related to Talent Detection in sports.

The study by Nasa; Jain & Juneja (2021) discusses the use of the Delphi method in the field of health. According to their study, for consensus to be considered, values above 80% are necessary. In the case of this thesis, a margin above 95% consensus was used, as this is a topic that commonly presents divergence.

In similar results, Bell et al. (2021) applied the Delphi method to 17 experts responsible for defining the concept of sports specialization. After the consultation, in the third round, the authors were able to define the concept as intentional and focused participation in a sport for the majority of the time, restricting opportunities for involvement in other sports. This concept aligns with the idea proposed in this article that, according to biological maturation, a variety of sports practice should be offered to allow motor development, with subsequent specialization only after the age of eight (the transition phase to specialization).

In addition to its scientific character, Niederberger & Köberich (2021) highlight the interdisciplinary and transdisciplinary nature of the Delphi method in the field of health. While it is a facilitating method, the author emphasizes that it also presents a challenge in terms of obtaining consensus among experts. Proof of this is that total consensus among the evaluators in this thesis (considering the value $\geq 95\%$) was only achieved in the third round of consultation.

This challenging factor was observed in this thesis due to the tests proposed for the Sports Talent methodology. Three questions drew attention during the validation process: 1) The use of Tanner Staging; 2) The use of Dermatoglyphics; 3) The addition of other tests.

Regarding the use of Tanner Staging, there was a concern about the sensitivity of the test application, as well as the reliability of the data filled out by the child in self-assessment. To achieve consensus, procedural guidelines were adopted in the methodology, both in explaining the test so that the child could provide accurate answers and in separating the collection groups to avoid contact between groups, preventing discussions about the test and possible embarrassment that could lead the individual to withhold the true response.

Regarding dermatoglyphics, questions were raised about the scientific nature of the method. To address this, all the theoretical framework of this study was presented, including the study by Alberti et al. (2021), which demonstrates its scientific nature by being published in a renowned international journal. This questioning should occur due to the previous method, which involved using stamp ink and observation through a magnifying glass, which does not apply to the present work that uses validated computerized dermatoglyphics.

Finally, regarding the addition of other tests, this did not occur because of the understanding of the phases of Talent Detection in sports. Specific tests will be used in future stages, which do not apply to this initial phase with a more general character. Therefore, with understanding and adjustments, at the end of the third round, all evaluators reached a consensus, recognizing the potential of the methodology for Talent Detection in sports (97.7%) and for the development of Public Policies (100%).

While the study successfully established the face validity of the "SPORTS TALENT" methodology for detecting motor talents in the sports context, several limitations should be considered. First, the reliance on the Delphi Method and the sample profile of the EEP, although experienced age $\bar{X} = 44.3 \pm 10.5$ years; years dedicated to work in EAR $\bar{X} = 12.3 \pm 10.4$ years, may still present a bias rooted in the subjective judgments of the expert panel. Second, although achieving a 100% consensus on the composite validity by the end of the third round is notable, individual components like Biological Maturation by Tanner showed significant divergence, potentially questioning the robustness of the methodology in this area. Additionally, the lower consensus index (95.7%) regarding the order of anthropometric measurements indicates room for further refinement to ensure comprehensive validity.

The limitations of the study include the fact that the methodology has not yet been tested on a wider, more diverse population beyond the initial expert evaluations. Furthermore, future studies should aim to empirically validate these protocols across different demographics and competitive levels and conduct longitudinal studies to verify

whether the detected talents indeed become high-performance athletes. This approach will help confirm the universal applicability and efficacy of the methodology in the broader context of sports talent identification.

Conclusion

The study successfully established the scientific validity of a methodology called "Sports Talent" aimed at detecting motor talents in sports. Through the use of the Delphi method and consultation with a group of expert evaluators with experience in the sports field, the tests were carefully selected and validated. The methodology covered various relevant dimensions, including sociocultural, psychological, biological, and motor factors, as well as specific aspects such as sexual maturation and epigenetic potential.

The interdisciplinary approach adopted in this research aimed to create a comprehensive methodology, considering the complexity involved in detecting sports talents. The results obtained demonstrated a high level of consensus among the expert evaluators (content and appearance validation at 100% for the tests and 100% for the order of tests), thus validating the proposed methodology. This suggests that "Sports Talent" can be a valuable tool for identifying young motor talents, contributing to the development of high-performance athletes.

Furthermore, the methodology has the potential not only for talent detection but also for informing the development of public policies related to sports. The inclusion of variables such as sexual maturation and epigenetics enriches the approach, allowing for a more holistic understanding of individual capabilities. Considering the social, economic, and scientific importance of sports, "Sports Talent" can provide valuable insights for governmental decision-making.

In summary, the present study is justified by the need for a comprehensive and validated methodology for detecting motor talents in sports. The "Sports Talent" methodology fills this gap by addressing various dimensions and relevant factors, supported by a group of experienced experts. It is believed that this methodology can significantly contribute to the identification of talented young athletes and inform sports-related public policies, thereby promoting sports development and achieving high performance.

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Datos de los/as autores/as y traductor/a:

Michael Douglas Celestino Bispo	michaeldouglasc@hotmail.com	Autor/a
Marcos Antonio Almeida-Santos	marcosalmeida2010@yahoo.com.br	Autor/a
Antonio Carlos Gomes	contatoacgomes@gmail.com	Autor/a
Márcio Duarte Carvalho Alves	marcio.duarte@souunit.com.br	Autor/a
Estélio Henrique Martin Dantas	estelio.henrique@souunit.com.br	Autor/a
Rosalia Angelita Neumann García	noili@textualassessoria.com.br	Traductor/a